

## PERSONAL DATA

Name	Salvatore
Surname	FEDERICO
Birth Date and Place	29 <sup>th</sup> of July 1976, Messina, Italy
Gender	Male
Citizenship	Italian, Canadian
Marital Status	Married, two sons
Professional Status	PEng: Professional Engineer in the Province of Alberta, Canada
Language Proficiency	Italian            mother tongue English           very fluent Japanese        advanced conversation, intermediate reading-writing *

\* Certified Japanese Language Proficiency Test Level 3, <http://info.jees-jlpt.jp/>

## CONTACT INFORMATION

Current Position	Professor, Schulich School of Engineering, The University of Calgary <ul style="list-style-type: none"><li>• Department of Mechanical and Manufacturing Engineering</li><li>• Centre for Bioengineering Research and Education</li></ul> Adjunct Professor, Faculty of Kinesiology, The University of Calgary <ul style="list-style-type: none"><li>• Human Performance Laboratory</li></ul>
Office	Department of Mechanical and Manufacturing Engineering The University of Calgary 2500 University Drive NW Calgary, Alberta, T2N 1N4, Canada Office location: MEB406 Email: <a href="mailto:salvatore.federico@ucalgary.ca">salvatore.federico@ucalgary.ca</a> Tel.: +1-403-220-5790; Fax: +1-403-282-8406

## MAIN RESEARCH ACTIVITIES

<b>Continuum Mechanics</b>	<i>Foundations</i> : differential geometrical approach to Continuum Mechanics <i>Theory of Material Uniformity</i> : inhomogeneities and their evolution <i>Theory of Elasticity</i> : anisotropic, non-linear and linear materials <i>Composite Materials</i> : composites with statistically oriented inclusions
<b>Tissue Biomechanics</b>	<i>Microstructural Models</i> : general, and specialised to articular cartilage <i>Growth and Remodelling</i> : in fibrous soft tissues

## ACADEMIC RECORD

- 1989-09 – 1994-07 *Maturità Scientifica*, Liceo Scientifico Archimede, Messina, Italy  
with full marks: 60/60
- 1994-11 – 2000-10 *Laurea* (BSc+MSc) in Mechanical Engineering, University of Catania, Italy  
with full marks and honours: 110/110, *cum laude* (sup. Dr. G. La Rosa, Dr. W. Herzog)  
Thesis: *Biomechanical Analysis of Articular Cartilage in Joint Contact*
- 2001-01 – 2004-03 PhD in Structural Mechanics, University of Catania, Italy  
(in Italy, no numerical grade is given for PhD; sup. Dr. G. La Rosa, Dr. W. Herzog)  
Thesis: *Microstructural Modelling of Articular Cartilage*
- 2004-12 – 2007-12 Post Doctoral Fellowship (Supervisor: Dr. W. Herzog)  
Human Performance Laboratory, The University of Calgary, Canada
- 2008-01 – 2012-03 Assistant Professor, Schulich School of Engineering, The University of Calgary  
Department of Mechanical and Manufacturing Engineering  
Centre for Bioengineering Research and Education
- 2014-01 – 2014-06 Associate Director (Undergraduate Studies), Biomed. Eng., The University of Calgary  
Centre for Bioengineering Research and Education
- 2012-04 – 2018-06 Associate Professor, Schulich School of Engineering, The University of Calgary  
Department of Mechanical and Manufacturing Engineering  
Centre for Bioengineering Research and Education
- 2012-09 – 2018-06 Adjunct Associate Professor, Faculty of Kinesiology, The University of Calgary  
Human Performance Laboratory
- 2018-07 – current Professor, Schulich School of Engineering, The University of Calgary  
Department of Mechanical and Manufacturing Engineering  
Centre for Bioengineering Research and Education
- 2018-07 – current Adjunct Professor, Faculty of Kinesiology, The University of Calgary  
Human Performance Laboratory
- 2010-09 – current BA in Greek and Roman Studies, The University of Calgary

## RELEVANT TRAINING AND RESEARCH EXPERIENCES

### Pre Doctoral

- 2000-06 – 2000-08 Visiting Student (Supervisor: Dr. Walter Herzog)  
Human Performance Laboratory, The University of Calgary, Canada
- 2001-05 – 2001-08 Visiting PhD Student (Supervisor: Dr. Walter Herzog)  
Human Performance Laboratory, The University of Calgary, Canada
- 2001-09-10/14 Attendance at Advanced Course “Biomechanics of Soft Tissue”  
CISM (International Centre for Mechanical Sciences), Udine, Italy
- 2002-07 – 2002-08 Visiting PhD Student (Supervisor: Dr. Walter Herzog)  
Human Performance Laboratory, The University of Calgary, Canada
- 2003-09 – 2003-10 Visiting PhD Student (Supervisor: Dr. Walter Herzog)  
Human Performance Laboratory, The University of Calgary, Canada

**Post Doctoral**

- 2005-10 Visiting Research Scholar (Supervisor: Dr. Shoji Imatani)  
Department of Energy Conversion Science, Kyoto University, Japan
- 2006-09 Visiting Research Scholar (Supervisor: Dr. Shoji Imatani)  
Department of Energy Conversion Science, Kyoto University, Japan

**Visiting Professorships**

- 2010-05 Visiting Professor (with Dr. Giovanna Valenti)  
Department of Sciences for Engineering and Architecture, University of Messina, Italy
- 2011-05 – 2011-08 Visiting Professor (with Dr. Shoji Imatani)  
Department of Energy Conversion Science, Kyoto University, Japan
- 2012-05 – 2012-06 Visiting Professor (with Dr. Shoji Imatani), supported by the Kyoto Univ. Foundation  
Department of Energy Conversion Science, Kyoto University, Japan
- 2012-07 – 2012-08 Visiting Professor (with Dr. Giovanna Valenti)  
Department of Sciences for Engineering and Architecture, University of Messina, Italy
- 2014-10 – 2015-02 Visiting Professor (with Dr. Giovanna Valenti)  
Department of Sciences for Engineering and Architecture, University of Messina, Italy
- 2015-04 – 2015-06 Visiting Professor (with Dr. Shoji Imatani), supported by a Nippon Steel Sumitomo Metal Inc. Grant, Department of Energy Conversion Science, Kyoto University, Japan
- 2017-05 Visiting Professor, supported by a University of Messina visiting professor grant  
Departments of Engineering and Mathematics: one 30h course, one 10h course
- 2017-05 – 2017-06 Visiting Professor (with Dr. Shoji Imatani)  
Department of Energy Conversion Science, Kyoto University, Japan
- 2017-07 Visiting Professor (with Dr. Giovanna Valenti)  
Department of Sciences for Engineering and Architecture, University of Messina, Italy
- 2017-12 – 2018-01 Visiting Professor (with Dr. Shoji Imatani), supported by a Nippon Steel Sumitomo Metal Inc. Grant, Department of Energy Conversion Science, Kyoto University, Japan
- 2018-02 Visiting Professor (with Dr. Alfio Grillo), supported by the Polytechnic of Torino  
Department of Mathematical Sciences “G.L. Lagrange” Polytechnic of Torino, Italy
- 2018-06 – 2018-08 Visiting Professor (with Dr. Giovanna Valenti)  
Department of Sciences for Engineering and Architecture, University of Messina, Italy
- 2018-12 – 2019-01 Visiting Professor (with Dr. Shoji Imatani), supported by a Nippon Steel Sumitomo Metal Inc. Grant, Department of Energy Conversion Science, Kyoto University, Japan
- 2019-06 Visiting Professor (with Dr. Alessio Gizzi), supported by a UCBM grant  
Università Campus Biomedico di Roma, Italy
- 2019-06 – 2019-07 Visiting Professor (with Dr. Giovanna Valenti)  
Department of Sciences for Engineering and Architecture, University of Messina, Italy



## FORMER TRAINEES

### Supervision of Italian *Laurea* Thesis Projects (titles translated from Italian)

- 2002-04 – 2002-10  
(co-supervised) Alfio Grillo, *Laurea* in Mechanical Eng., University of Catania, Italy  
Thesis: *A Variational Approach to Growth Mechanics in Biological Tissues*
- 2002-04 – 2002-10  
(co-supervised) Gianluca Caramagno, *Laurea* in Mechanical Eng., University of Catania, Italy  
Thesis: *Experimental Analysis of the Mechanical Behaviour of Tendons*
- 2003-01 – 2003-07  
(co-supervised) Maria Grazia Lo Giudice, *Laurea* in Mechanical Eng., University of Catania, Italy  
Thesis: *Analysis of the Lumbal-Sacral Spine under Random Loading*
- 2007-07 – 2008-01  
(co-supervised) Marco Caruso, *Laurea* in Automation & Control Eng., University of Catania, Italy  
Thesis: *Response of Soft Hydrated Tissues to Confined Compression*

### Undergraduate Students

- 2009-09 – 2009-12 Mr. Aleksandar Tomic, Biomedical Eng., The University of Calgary, Canada  
Thesis: *Mathematical Modeling of Elasticity and Permeability of Articular Cartilage*
- 2010-01 – 2010-04 Mr. Phillip Du Plessix, Biomedical Eng., The University of Calgary, Canada  
Thesis: *Cartilage Permeability and Joint Contact Boundary Conditions*
- 2017-05 – 2017-08 Ms. Vivian Mark, Biomedical Eng., The University of Calgary, Canada  
Summer Project: *Diffusivity Measurements in Articular Cartilage*

### MSc Students

- 2001-05 – 2003-06  
(co-supervised) Mr. Sang-Kuy Han, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Articular Cartilage Modeling in the 3-D Patellofemoral Joint Contact*
- 2010-07 – 2010-12  
(co-supervised) Mr. Martin Kuhlmann, Biomedical Eng., The University of Calgary, Canada  
Thesis: *A Coupled Eulerian-Lagrangian Mechanical Model of the Breast*
- 2009-01 – 2010-12 Mr. Jan Pajerski, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Non-Linear Biphasic Microstructural Numerical Analysis of Articular Cartilage and Chondrocytes*
- 2009-09 – 2011-12 Mr. Andrey Melnikov, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Non-linear Interacting Model of Fibre-reinforced Materials with an Application to the Passive Mechanical Behaviour of the Cardiac Muscle*
- 2010-09 – 2012-06 Mr. Aleksandar Tomic, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Nonlinear Elasticity, Fluid Flow and Remodelling in Biological Tissues*
- 2014-01 – 2015-12 Mr. Kotaybah Hashlamoun, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Rapid Evaluation of Material Properties for Materials Reinforced by Statistically Oriented Fibres*
- 2011-01 – 2016-02  
(co-supervised) Mr. Kaveh Yekta, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Effect of Downhole Vibration on Coiled Tubing Reach in Horizontal Intervention*
- 2014-06 – 2016-04  
(co-supervised) Mr. Scott Sibole, Biomedical Eng., The University of Calgary, Canada  
Thesis: *pyCellAnalyst: An Open Source Tool for Robust Image Processing, Segmentation, and Analysis Of 3-D Deformation, with Specific Application to Articular Cartilage Micromechanics*

### PhD Students

- 2003-09 – 2009-01  
(co-supervised) Mr. Sang-Kuy Han, Mechanical Eng., The University of Calgary, Canada  
Thesis: *In Situ Chondrocyte Mechanics and Numerical Modeling*

- 2011-09 – 2014-02  
(co-supervised) Mr. Kaveh PourAkbar Saffar, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Study on Biomechanical Aspects of Application of Carbon Nanotube as a Reinforcing Scaffold for Bone Tissue*
- 2016-11 – 2017-12  
(co-supervised) Mr. Tarek Ben Mahmud, PhD, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Development of Nanostructured Coatings by High Velocity Oxy-Fuel Spraying*
- 2013-09 – 2018-06 Mr. Amirhossein Hamedzadeh, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Damage and Remodelling in Recruitment-Based Models for Biological Tissues*

### Post Doctoral Fellows

- 2008-09 – 2011-06 Dr. Malika Bongue-Boma, The University of Calgary, Canada  
Project: *Electromechanical Modelling of Articular Cartilage*
- 2012-09 – 2012-12 Dr. Chiara Bellini, The University of Calgary, Canada  
Project: *Continuum Mechanical Modelling of Soft Tissues*
- 2014-01 – 2017-01  
(co-funded) Dr. Mohsen Maleki-Karyak, The University of Calgary, Canada  
Project: *Theoretical and Experimental Modelling of Cartilage Permeability*

### Research Assistants

- 2009-09 – 2010-12 Dr. Amr Guaily, The University of Calgary, Canada  
Project: *Mathematical and Numerical Modelling of Hydrated Soft Tissues*

### Visiting Students

- 2010-05 – 2010-11 Mr. Eng-Kuan Moo, MSc, Biomed. Eng., Univ. of Malaya, Malaysia (co-supervised)
- 2011-09 – 2012-08 Mr. Eng-Kuan Moo, PhD, Biomed. Eng., Univ. of Malaya, Malaysia (co-supervised)
- 2012-10 – 2014-04 Mr. Eng-Kuan Moo, PhD, Biomed. Eng., Univ. of Malaya, Malaysia (co-supervised)
- 2018-09 – 2018-10 Mr. Salvatore Di Stefano, PhD, Pure and Applied Math., Politecnico di Torino, Italy

### Supervisory Committee

- 2009-06 - 2012-06 Ms. Chiara Bellini, PhD, Biomedical Eng.  
Thesis: *Cardiovascular Tissue Remodeling at Multiple Length Scales*
- 2012-11 - 2012-12 Mr. S. Abdolali Zareian Jahromi, PhD, Mechanical Eng.  
Thesis: *Non-Linear Constitutive Modeling of Piezoelectric Materials*
- 2014-07 - 2016-08 Mr. Stephen Cull, PhD, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Mass Transfer in Mixtures with Microstructure: Application to Bone Tissue*
- 2014-12 – 2018-01 Mr. Diego Ospina La Torre, PhD, Mechanical Eng., The University of Calgary, Canada  
Thesis: *Dexterous Manipulation for Robot Hands in aerial S&R and Prosthetic Applications*

### External Examination Committee Member

- 2015-03-17 Ms. Taisiya Sigaeva, PhD, Mechanical Eng., University of Alberta, Canada  
Thesis: *An Examination of the Design of Mathematical Models Incorporating Both Microstructural and Surface Effects in Anti-Plane Deformations*
- 2017-10-16 Ms. Fatemeh Moghaddam, PhD, Civil Eng., University of Alberta, Canada  
Thesis: *A 3D Continuum Finite Element Muscle Model for Investigation of Cervical Spine Load-Sharing Mechanisms and Injury Assessment during Impact Loading Scenarios*

### External Preliminary Examiner

- 2018-03 Mr. Ari Ronkainen, PhD, Forestry & Nat. Sci., University of Eastern Finland

Thesis: *Biomechanical Responses of Chondrocytes in Healthy and Meniscectomized Rabbit Knee Joints*

## FUNDING

### Pre Doctoral

- 1996 One-year scholarship for the results of the academic years 1994-95 and 1995-96 awarded by INPDAP (Italian Fund for Public Administration Employees)
- 1997 One-year scholarship as “Didactic Support Student” in Structural Engineering awarded by the Polytechnic of Torino, Italy; Sup. Prof. Alberto Carpinteri [declined]
- 2000-06 – 2000-08 Scholarship for thesis abroad (at the University of Calgary, Canada) awarded by *Opera Universitaria* – University of Catania, Italy
- 2001-01 – 2003-10 Three year Research Doctorate (PhD) Award awarded by the MIUR (Ministry of Education, University and Research, Italy) and the European Union Commission

### Post Doctoral

- 2004-12 – 2006-11 Post Doctoral Fellowship (7,000 CAD research allowance per annum, plus salary) awarded by the Alberta Ingenuity Fund, Canada
- 2006-12 – 2007-12 Post Doctoral Fellowship (3,000 CAD research allowance per annum, plus salary) awarded by the Alberta Heritage Foundation for Medical Research, Canada

### Funding as the Primary Applicant

- 2008-01 – 2017-12 30,000 CAD start-up funds, CBRE-DMME-SSE, The University of Calgary, Canada
- 2008-07 – 2009-07 18,000 CAD URGC Starter Grant, The University of Calgary, Canada
- 2009-01 – 2011-12 279,510 CAD New Faculty Award, Alberta Innovates – Technology Futures, Canada
- 2009-04 – 2014-03 115,000 CAD Discovery Grant, NSERC, Canada
- 2009-12 1,200 CAD URGC Visiting Scholar Grant (guest: Prof. R.W. Ogden, Glasgow, UK)
- 2011-04 – 2014-03 15,000 CAD Early Career Researcher Supplement, NSERC, Canada
- 2014-07 – 2015-06 23,000 CAD Sustainability Fund, Alberta Innovates – Health Solutions, Canada
- 2015-04 – 2020-03 145,000 CAD Discovery Grant, NSERC, Canada
- 2016-01 – 2017-04 20,000 CAD Supervisor Fund, BME Graduate Programme, UofC, Canada
- 2020-04 – 2023-03 87,000 CAD Discovery Grant, Evaluation Group Member Extension, NSERC, Canada

### Funding as Co-Applicant

- 2017-01 – 2018-12 15,000 CAD Conference Grant, Pacific Institute for the Mathematical Sciences

### Trainees’ Funding

- 2009-05 – 2010-04 10,000 CAD Jan Pajerski (MSc), Queen Elizabeth II Graduate Scholarship
- 2009-09 – 2009-12 1,200 CAD Andrey Melnikov (MSc), Dr. D. Singh Mohindra Memorial Bursary
- 2010-06 300 CAD Jan Pajerski (MSc), Can. Soc. Biomech. Travel Award
- 2010-07 4,200 CAD Amr Gualily (PhD), OMAE Calgary Chapter Graduate Scholarship in Eng.
- 2010-07 3,500 CAD Amr Gualily (PhD), Ian N. McKinnon Memorial Fellowship
- 2010-09 – 2012-06 25,717 CAD Aleksandar Tomic (MSc), NSERC CREATE Graduate Scholarship
- 2010-10 – 2012-04 27,392 CAD Andrey Melnikov (MSc), NSERC CREATE Graduate Scholarship
- 2011-05 – 2012-04 10,800 CAD Aleksandar Tomic (MSc), Queen Elizabeth II Graduate Scholarship
- 2012-05 – 2013-04 15,000 CAD Kaveh Pour Akbar Saffar (PhD), Queen Elizabeth II Graduate Scholarship
- 2014-01 – 2019-12 240,000 CAD Mawafag Alhasadi (PhD), Libyan Government (40 k / year)
- 2014-09 – 2015-08 17,300 CAD Scott Sibole (MSc), NSERC CREATE Graduate Scholarship
- 2014-09 – 2015-08 10,000 CAD Eng Kuan Moo (PostDoc), NSERC CREATE Fellowship

2014-12	250 CAD Kotaybah Hashlamoun, UofC Mech. Eng. Conference Grant
2014-09 – 2015-08	10,000 CAD Mohsen Maleki Karyak (PostDoc), NSERC CREATE Fellowship
2015-01 – 2017-12	165,000 CAD Mohsen Maleki Karyak (PostDoc), AIHS Fellowship (50k + 5k / year)
2015-04 – 2018-03	135,000 CAD Eng Kuan Moo (PostDoc), CIHR Fellowship (40k + 5k / year)
2015-09 – 2018-03	128,000 CAD Scott Sibole (PhD), AIHS PhD Student Fellowship (30k + 2k / year)
2015-09 – 2015-12	1,200 CAD Amirhossein Hamedzadeh (PhD), Dr. D. Singh Mohindra Memorial Bursary
2015-04	250 CAD Kotaybah Hashlamoun (MSc), UofC Mech. Eng. Conference Grant
2016-01 – 2018-12	45,000 CAD Eng Kuan Moo (PostDoc), AIHS Fellowship (15k + 5k / year)
2016-04	500 CAD Amirhossein Hamedzadeh (PhD), UofC Mech. Eng. Conference Grant
2016-07	3,000 CAD Amirhossein Hamedzadeh (PhD), Can. Soc. Biomech. 2016 Travel Grant
2016-08	500 CAD Amirhossein Hamedzadeh (PhD) ICTAM 2016 Student Travel Grant
2016-08	500 CAD Kotaybah Hashlamoun (PhD) ICTAM 2016 Student Travel Grant
2016-09 – 2017-04	10,000 CAD Kotaybah Hashlamoun (PhD) BME Grad Scholarship, UofC, Canada
2017-01 – 2019-12	165,000 CAD Amin Komeili (PostDoc), AIHS Fellowship (50k + 5k / year)
2017-05 – 2017-12	10,000 CAD Kotaybah Hashlamoun (PhD) BME Grad Scholarship, UofC, Canada
2017-05 – 2019-04	72,000 CAD Scott Sibole (PhD), Killam Graduate Scholarship (33k + 3k / year)
2017-06	500 CAD Kotaybah Hashlamoun (PhD) Grad Studies Travel Award, UofC, Canada
2017-06	500 CAD Mawafag Alhasadi (PhD) Mech Eng Grad Travel Award, UofC, Canada
2018-05 – 2018-08	5,000 CAD Kotaybah Hashlamoun (PhD) BME Grad Scholarship, UofC, Canada
2018-05 – 2018-08	3,000 CAD Scott Sibole (PhD) Izaak Walton Killam Doctoral Sch., UofC, Canada
2018-08	300 CAD Amirhossein Hamedzadeh (PhD), Can. Soc. Biomech. Travel Award
2018-08	250 CAD Mawafag Alhasadi (PhD) UofC Mech. Eng. Conference Grant
2018-08	300 CAD Mawafag Alhasadi (PhD) Can. Soc. Biomech. Travel Award
2018-08	300 CAD Kotaybah Hashlamoun (PhD), Can. Soc. Biomech. Travel Award
2018-08	1,000 CAD Kotaybah Hashlamoun (PhD), UofC Biomed Eng. Conference Grant
2019-02	1,586 CAD Scott Sibole (PhD) Izaak Walton Killam Doctoral Sch., UofC, Canada
2019-06	3,000 CAD Kotaybah Hashlamoun (PhD), Can. Soc. Biomech. 2018 Travel Grant
2019-06	1,000 CAD Kotaybah Hashlamoun (PhD), UofC Biomed Eng. 2018 Travel Grant
2019-05 – 2019-12	10,000 CAD Kotaybah Hashlamoun (PhD) BME Grad Scholarship, UofC, Canada
2019-05 – 2020-04	12,000 CAD Kotaybah Hashlamoun (PhD) Eyes High Scholarship, UofC, Canada
2019-08	5,000 USD Eng Kuan Moo (PostDoc), Intl. Soc. Biomech. Promising Scientist Award

### Teaching Awards

2013-03	Teaching Excellence Award (Second-Year Civil-Chemical-Mechanical) Engineering Student Society, The University of Calgary
2018-05	2017-2018 Teaching Achievement Award Schulich School of Engineering, The University of Calgary
2019-06	2018-2019 Teaching Achievement Award Schulich School of Engineering, The University of Calgary

### Research Awards

2000-10	<b>Federico, S.</b> – Finalist, award for the best <i>Laurea</i> thesis in Engineering Association of the Professional Engineers of the Province of Catania, Italy
2006-10	Han, S.-K., <b>Federico, S.</b> , Herzog, W. – Best Poster 7 <sup>th</sup> Alberta Biomedical Engineering Conference (Banff, Canada) Conferred by the Canadian Society for Biomechanics
2007-08	<b>Federico, S.</b> – ASB Young Scientist Post-Doctoral Award Conferred by the American Society of Biomechanics
2008-06	<b>Federico, S.</b> – Alberta Ingenuity New Faculty Award Conferred by the Alberta Ingenuity Fund, Canada (see Independent Research Funds)

- 2011-01 **Federico, S.** – 2010 Departmental Early Research Excellence Award  
Conferred by the Schulich School of Engineering, The University of Calgary, Canada
- 2012-11 Bellini, C., Satriano, A., Vigmond, E.J., **Federico, S.**, Di Martino, E.S. – Best Poster  
Cardiac Physiome Workshop (San Diego, USA)
- 2016-02 Grillo, A., Guaily, A., Giverso, C., **Federico, S.**, 2015, *J. Biomech. Eng.*, 137, 071004-8  
ASME Journal of Biomechanical Engineering, Editor's Choice List for 2015
- 2016-05 Han S.-K., Mäkitalo, J., Saarakkala, S., Rieppo, L., **Federico, S.**, Herzog, W., et al.  
Best Paper, Korean Society for Precision Engineering 2015 Meeting

### Invited Papers in Peer-Reviewed International Journals

- 2006-06 Herzog, W., **Federico, S.**, 2006, *Biomech. Mod. Mechanobiol.*, 5 (2-3), 64-81
- 2008-12 **Federico, S.**, Herzog, W., 2008, *J. Biomech.*, 41 (16), 3309-3313
- 2010-02 **Federico, S.**, 2010, *Int. J. Mech. Sci.*, 52 (2), 175-182
- 2012-01 **Federico, S.**, Grillo, A., 2012, *Mech. Mat., Mech. Mat.*, 44, 58-71
- 2012-03 **Federico, S.**, 2012, *Int. J. Non-Lin. Mech.*, 47 (2), 273-284
- 2012-03 Grillo, A., **Federico, S.**, Wittum, G., 2012, *Int. J. Non-Lin.*, 47 (2), 388-401
- 2012-11 Bongue-Boma, M.\*\*, Sudak, L., **Federico, S.**, 2012, *Int. J. Multiscale Comp. Eng.*, 10 (6), 581-597
- 2014-09 Tomic, A.\*, Grillo, A., **Federico, S.**, *IMA J. Appl. Math.*, 79 (5), 1027-1059
- 2015-07 **Federico, S.**, Grillo, A., Imatani, S., *Math. Mech. Solids*, 20 (6), 643-662
- 2015-07 Grillo, A., Guaily, A.\*\*, Giverso, C., **Federico, S.**, 2015, *J. Biomech. Eng.*, 137, 071004-8
- 2015-10 Grillo, A., Tomic, A.\*, Wittum, G., **Federico, S.**, 2015, *Math. Mech. Solids*, 20 (9), 1107-1129
- 2016-03 **Federico, S.**, Grillo, A., Segev, R., 2016, *Cont. Mech. Thermodyn.*, 28 (1), 379-390
- 2017-01 Grillo, A., Carfagna, M., **Federico, S.**, 2018, *J. Eng. Math.*, 109 (1), 139-172
- 2019-03 Hamedzadeh, A.\*, Grillo, A., Epstein, M., **Federico, S.**, 2019, *Mech. Res. Comm.*, 96, 56-61
- 2019-04 Grillo, A., Di Stefano, S., **Federico, S.**, *Mech. Res. Comm.*, 97, 89-95

### Invited Lectures at International Courses

- 2013-07-01/05 Advanced Course "Non Linear Mechanics of Soft Fibrous Materials"  
CISM, International Centre for Mechanical Sciences, Udine, Italy

### Invited Lectures at Other Universities

- 2017-05-02/25 Series of Lectures (40h) on the Geometrical Foundations of Continuum Mechanics  
Departments of Engineering and Mathematics, University of Messina, Italy

### Plenary Lectures at International Conferences

- 2007-08-25 **Federico, S.**, Herzog, W., 31st ASB Annual Meeting (Stanford University, USA)

### Invited Lectures at International Conferences

- 2006-08-02 **Federico, S.**, Herzog, W., 5<sup>th</sup> World Congress of Biomechanics (München, Germany)
- 2007-07-03 **Federico, S.**, Herzog, W., Workshop on Mechanics and Biology (Castro Urdiales, Spain)
- 2010-10-06 **Federico, S.**, Gasser, T.C., 47<sup>th</sup> SES Annual Meeting (Iowa State University, USA)
- 2012-07-11 **Federico, S.**, 2012 European Solid Mechanics Conference (Graz, Austria)
- 2012-07-11 **Federico, S.**, Grillo, A., 2012 European Solid Mechanics Conference (Graz, Austria)
- 2013-06-07 **Federico, S.**, Grillo, A., 2013, Advances in Applied Math. & Mech. (Manchester, UK)
- 2013-07-24 **Federico, S.**, Grillo, A., Segev, R., 4<sup>th</sup> Can. Conf. Nonlin. Solid Mech. (Montreal, Canada)
- 2013-07-29 **Federico, S.**, Grillo, A., Herzog, W., 50<sup>th</sup> SES Annual Meeting (Brown University, USA)
- 2013-07-31 **Federico, S.**, Grillo, A., Imatani, S., 50<sup>th</sup> SES Annual Meeting (Brown University, USA)
- 2013-09-18 **Federico, S.**, Grillo, A., AIMETA Congress (Polytechnic of Torino, Italy)
- 2013-09-19 Bongué-Boma, M.\*\*, **Federico, S.**, AIMETA Congress (Polytechnic of Torino, Italy)
- 2014-07-10 **Federico, S.**, 7<sup>th</sup> World Congress of Biomechanics (Boston, USA)
- 2015-09-16 **Federico, S.**, Grillo, A., 2015 AIMETA Congress (Genova, Italy)

2018-08-16 **Federico, S.**, 2018 Canadian Society for Biomechanics Congress (Halifax, Canada)

### Invited Seminars

2006-03-06 Dept. Industrial and Mechanical Engineering, University of Catania, Italy  
 2007-09-20 Dept. Physical and Chemical Methodologies for Eng., University of Catania, Italy  
 2008-05-26 Dept. Energy Conversion Science, Kyoto University, Japan  
 2009-06-01 Dept. Energy Conversion Science, Kyoto University, Japan  
 2009-07-21 Orthopaedic Dept., University Hospital, University of Basel, Switzerland  
 2010-03-09 Institute for Biocomplexity and Informatics, The University of Calgary, Canada  
 2010-05-31 Dept. Civil Engineering, University of Messina, Italy  
 2010-07-22/23 Dept. Mechanical Engineering, Kobe University, Japan  
 2010-07-28 Dept. Energy Conversion Science, Kyoto University, Japan  
 2011-01-26 Dept. Mechanical Engineering, University of Alberta, Canada  
 2011-05-31 Dept. Aeronautics and Astronautics, Kyoto University, Japan  
 2011-06-17 Dept. Energy Conversion Science, Kyoto University, Japan  
 2011-07-22 Dept. Aeronautics and Astronautics, Kyoto University, Japan  
 2011-07-25 Dept. Energy Conversion Science, Kyoto University, Japan  
 2012-06-28 Dept. Energy Conversion Science, Kyoto University, Japan  
 2015-02-11 Dept. Mathematics, University of Messina, Italy  
 2015-03-16 Dept. Mechanical Engineering, University of Alberta, Canada  
 2015-04-20 Dept. Energy Conversion Science, Kyoto University, Japan  
 2015-05-13 Okinawa Institute of Science and Technology, Japan  
 2015-06-01 Korea Institute of Industrial Technology, Cheonan, South Korea  
 2016-05-23 Dept. Energy Conversion Science, Kyoto University, Japan  
 2016-06-29 Dept. Mathematics, University of Messina, Italy  
 2016-05-25 Liceo Scientifico Archimede, Messina, Italy  
 2017-06-02 Dept. Energy Conversion Science, Kyoto University, Japan  
 2017-12-22 Dept. Energy Conversion Science, Kyoto University, Japan  
 2018-12-27 Dept. Energy Conversion Science, Kyoto University, Japan  
 2019-06-14 Università Campus Biomedico, Roma, Italy

## MEMBERSHIPS

### Scientific

2002 – present ISB, International Society of Biomechanics  
 2006 – present ASB, American Society of Biomechanics  
 2006 – present CSB, Canadian Society for Biomechanics  
 2006 – present IUTAM, International Union of Theoretical and Applied Mechanics  
 2006 – present AIMETA, Italian Association of Theoretical and Applied Mechanics  
 2008 – present ESB, European Society of Biomechanics  
 2009 – present EUROMECH, European Mechanics Society  
 2011 – present Society for Natural Philosophy  
 2011 – present Society of Engineering Science  
 2012 – present Cardiac Physiome Society  
 2013 – present M&MoCS, International Centre for Mathematics and Mechanics of Complex Systems

### Professional

2001 – 2015 Association of Professional Engineers of the Province of Messina, Italy  
 2005 – present CAUT, Canadian Association of University Teachers  
 2009 – present APEGA, Association of Professional Engineers and Geoscientists of Alberta, Canada

## SERVICE

### At the University of Calgary – Faculty Level

2008-07 – 2009-06	Engineering Representative, Faculty of Medicine Council
2009-07 – 2010-06	Engineering Representative, Faculty of Kinesiology Council
2010-07 – 2012-06	Engineering Gender and Diversity Committee Member
2012-07 – 2013-06	Engineering Representative, Education Faculty Council
2012-07 – 2014-06	CBRE representative, Schulich School of Engineering Student Recruitment Committee
2012-07 – 2014-06	Schulich School of Engineering Prize and Award Committee
2013-07 – 2014-06	Engineering Faculty Appeals Committee
2014-04-08	Engineering Fair Judge
2016-07 – present	CBRE representative, Schulich School of Engineering Undergraduate Studies Committee
2018-01 – present	University Research Grant Committee member

### At the University of Calgary – Department Level

2008-04 – 2014-06	Student Affairs Committee Member (Biomedical Engineering)
2008-07 – 2012-06	Departmental Computing Committee (Mech & Manufact Eng)
2011-07 – 2013-06	Undergraduate Studies Committee (Mech & Manufact Eng)
2011-07 – 2013-06	Chair, Applied Mechanics and Biomechanics Committee (Mech & Manufact Eng)
2012-07 – 2014-06	Social Committee (Mech & Manufact Eng)
2012-07 – 2014-06	Curriculum Committee (Biomedical Engineering)
2013-01 – 2013-04	Selection for a Position in Computational Mechanics (Mech & Manufact Eng)
2013-07 – 2014-06	Biomedical Engineering Student Society Liaison (Biomedical Engineering)
2013-05 – 2014-08	Selection for a Position in BioMEMS (Biomedical Engineering)
2014-01 – 2014-05	Member of the Head Selection Committee (Mech & Manufact Eng)
2008-07 – present	Applied Mechanics and Biomechanics Committee (Mech & Manufact Eng)
2016-07 – present	Chair, Curriculum Committee, Biomedical Engineering Specialisation
2019-01 – 2019-06	Interim Chair, Applied Mechanics and Biomechanics Committee (Mech & Manufact Eng)
2015-06 – 2020-06	Adjunct Professor Appointment Committee (Mech & Manufact Eng)

### Granting Agencies

2019-07 – 2022-06	NSERC Evaluation Group in Mechanical Engineering (EG 1512) Natural Sciences and Engineering Research Council of Canada
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### In Editorial Boards of International Journals

2013-05 – present	Mathematics and Mechanics of Solids
2019-06 – present	AAPP, Accademia Peloritana dei Pericolanti

### Editor of Special Issues

2017-01 – 2018-05	Mathematics and Mechanics of Solids, S.I. in Memory of Prof. Gaetano Giaquinta
2017-01 – 2018-08	AAPP, Accademia Peloritana dei Pericolanti, S.I. in Memory of Prof. Gaetano Giaquinta

### In Scientific Societies

2011-01 – 2016-12	Secretary, Canadian Society for Biomechanics
2017-01 – 2018-12	President, Canadian Society for Biomechanics
2019-01 – 2020-12	Past President, Canadian Society for Biomechanics
2011-03 – present	Scientific Committee Member and Vice Chair, Permanent International Session of Research Seminars (PISRS), University of Messina, Italy
2015-03 – 2015-08	Society for Natural Philosophy – 2015 Truesdell Lecturer Selection Committee
2018-07 – present	Society for Natural Philosophy – Member of the Selection Committee

### Referee for External Committees

2008-01	Frontier Research Base for Global Young Researchers, Osaka University, Japan
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2010-01	Frontier Research Base for Global Young Researchers, Osaka University, Japan
2010-08	DRDC (Defence R&D Canada), Technology Investment Fund Grant
2010-12	NSERC (Natural Sciences and Engineering Research Council, Canada) Discovery Grant
2015-02	Royal Military College of Canada, review of a promotion application (associate prof.)
2016-12	Rowan University, USA, review of a promotion application (associate prof.)
2017-01	NSERC (Natural Sciences and Engineering Research Council, Canada) Discovery Grant

### Referee for Books

2011-02	One chapter in "Modelling of Physiological Flows" edited by Drs. Davide Ambrosi, Alfio Quarteroni, Gianluigi Rozza; Springer, 2011, ISBN-10: 8847019346
2012-02	Book proposal for Wiley & Sons publishing house; Author/Title details withheld

### Referee for International Scientific Journals

2002-09 – present	Biomedical Engineering Online
2005-09 – present	Biomechanics and Modeling in Mechanobiology
2006-04 – present	Medical Engineering & Physics
2006-05 – present	Journal of Biomechanics
2006-05 – present	Acta Biomaterialia
2006-06 – present	Computer Methods in Biomechanics and Biomedical Engineering
2007-09 – present	Osteoarthritis and Cartilage
2008-07 – present	Clinical Biomechanics
2009-04 – present	Journal of Biomechanical Engineering
2009-08 – present	Accademia Peloritana dei Pericolanti, Scienze Fisiche Matematiche e Naturali
2009-08 – present	Aerospace Science and Technology
2009-10 – present	International Journal of Mechanical Sciences
2010-04 – present	Physical Review Letters
2010-09 – present	Physical Review E
2011-05 – present	International Journal of Non-Linear Mechanics
2011-08 – present	Journal of Elasticity
2011-09 – present	Applied Sciences
2012-11 – present	Journal of the Royal Society Interface
2012-11 – present	Rubber Chemistry and Technology
2013-01 – present	Meccanica
2013-08 – present	Mathematics and Mechanics of Solids
2013-11 – present	Mathematics and Mechanics of Complex Systems
2014-02 – present	Medical and Biological Engineering and Computing
2014-07 – present	Continuum Mechanics and Thermodynamics
2014-07 – present	Archives of Applied Mechanics
2014-11 – present	Exercise and Sport Sciences Reviews
2014-12 – present	Journal of the Mechanical Behavior of Biological Materials
2015-05 – present	Mechanics of Materials
2015-09 – present	ZAMP, Zeitschrift für Angewandte Mathematik und Physik (J. Appl. Math. Phys.)
2015-10 – present	Physical Review Applied
2017-02 – present	Journal of Engineering Mathematics
2017-08 – present	Acta Mechanica
2017-12 – present	Proceedings of the Royal Society of London Series A
2018-08 – present	Engineering Failure Analysis
2018-08 – present	Mechanics Research Communications
2019-04 – present	Journal of Mechanics of Materials and Structures
2019-07 – present	The Foot
2019-09 – present	Journal of the Mechanics and Physics of Solids

### Referee for Conference Abstracts

2008-04	2008 International Society of Biomechanics in Sports Conference (1 abstract)
2009-02	2009 Canadian Medical and Biological Engineering Conference (2 abstracts)
2012-02	2012 International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (1 abstract)
2013-01	2013 International Society of Biomechanics Conference (20 abstracts)
2013-09	2013 Alberta Biomedical Engineering Conference (28 abstracts)
2019-01	2019 International Society of Biomechanics Conference (31 abstracts)

### Scientific Committee Member

2020-02	Advanced International School on “Imaging, Modeling and Simulation in Biomechanics & Mechanobiology” (Roma, Italy)
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### Symposium/Session Organiser

2010-09	Continuum Mechanics and Microstructure Symposium within the 8 <sup>th</sup> ICNAAM (Rhodes, Greece) DOI: <a href="https://doi.org/10.1063/1.3498472">10.1063/1.3498472</a>
2014-07	Canadian Society for Biomechanics Tissue Mechanics Session within the 7 <sup>th</sup> World Congress of Biomechanics (Boston, USA)
2015-09	Computational Cartilage Biomechanics Session within Computer Modelling in Biomechanics and Biomedical Engineering (Montreal, Canada)
2019-07	Career Evolution: Reflections from CSB Young Investigators within the XXVII Congress of the International Society of Biomechanics (Calgary, Canada)
2019-07	Reflections from Past Career Awardees of the Canadian Society for Biomechanics (CSB/SCB) within the XXVII Congress of the International Society of Biomechanics (Calgary, Canada)
2019-08	Growth and Remodelling Session within Computer Modelling in Biomechanics and Biomedical Engineering (New York, USA)
2019-08	Vascular Mechanics Session within Computer Modelling in Biomechanics and Biomedical Engineering (New York, USA)

### Conference Organiser

2015-08	53 <sup>rd</sup> Meeting of the Society for Natural Philosophy (Calgary, Canada)
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### Session Chairman

2007-07	Workshop on the Interplay between Mechanics and Biology (Castro Urdiales, Spain)
2008-06	International Conference on Applied Mathematics (Hong Kong)
2008-10	8 <sup>th</sup> International Seminar on Geometry, Continua and Microstructures (Catania, Italy)
2009-09	7 <sup>th</sup> EUROMECH Solid Mechanics Conference (Lisboa, Portugal)
2009-10	10 <sup>th</sup> Alberta BME Conference (Banff, Canada), poster session judge
2010-06	16 <sup>th</sup> Canadian Society for Biomechanics Conference (Kingston, ON, Canada)
2010-08	6 <sup>th</sup> World Congress of Biomechanics (Singapore)
2010-10	47 <sup>th</sup> Annual Meeting of the Society of Engineering Science (Ames, IA, USA)
2011-09	2 <sup>nd</sup> International Conference on Material Modelling (Paris, France)
2012-07	8 <sup>th</sup> EUROMECH Solid Mechanics Conference (Graz, Austria)
2013-07	Canadian Conference on Non-Linear Solid Mechanics (Montreal, QC, Canada)
2013-07	50 <sup>th</sup> Annual Meeting of the Society of Engineering Science (Providence, RI, USA)
2013-09	2013 Congress of the Italian Assoc. of Theoretical & Applied Mechanics (Torino, Italy)
2014-06	2014 US National Congress on Theoretical & Applied Mechanics (Lansing, MI, USA)
2014-07	7 <sup>th</sup> World Congress of Biomechanics (Boston, MA, USA)
2014-09	12 <sup>th</sup> ICNAAM, Int. Conf. Numerical Analysis and Applied Math. (Rhodes, Greece)
2015-08	53 <sup>rd</sup> Meeting of the Society for Natural Philosophy (Calgary, Canada)
2015-09	CMBBE 2015, Computer Methods in Biomech. and Biomed. Eng. (Montreal, Canada)
2016-08	ICTAM 2016, Int. Congress on Theoretical and Applied Mechanics (Montreal, Canada)

## OTHER STUDIES - MISCELLANEA

- Classics**                    The love for classical languages started with the five years of Latin I took in high school, and led me to my current studies in Greek and Roman Studies, which started with the idea of learning some Classical Greek and taking some rust off my Latin. I am also interested in studies of Linguistics and Historical Linguistics, with particular regards to the Indo-European languages, with an outsider: Japanese.
- History**                    I am particularly interested in Greco-Roman History, from the Minoan and Mycenaean civilisations to the fall of the Western Roman Empire.
- Music**                    I started playing any device capable of producing sounds when I was a child. Then, I studied piano for three years before entering University. Music is still one of my major passions. When time permits (i.e., very seldom...), I love to sit at the piano or grab the guitar and practice as much as I can. Occasionally, I have chances to gather with my brother and friends to make the old rock band play again...
- Martial Arts**            Since I was 5 years old, I have studied *judo* and then *karate*. I hold a *sandan* (third-rank black belt degree) in the *Koryu Uchinadi* style of *karate* and a *nidan* (second-rank black belt degree) in the *Shotokan* style of *karate*. I am a *karate* instructor, teaching to adults and children. I also practice *yoga* as a complementary discipline.

## LIST OF PUBLICATIONS (MOST RECENT PUBLICATIONS ARE LISTED FIRST)

**Legend - A:** Journal Articles; **S:** Submitted Journal Articles; **C:** Correspondence; **B:** Book Chapters; **P:** Abstracts in Peer-Reviewed Conference Proceedings; a single asterisk (\*) denotes supervised graduate students, a double asterisk (\*\*) denotes supervised postdoctoral fellows and research associates

### Articles in Peer-Reviewed International Journals – Accepted with Revisions

- [S1] Consolo, G. **Federico, S.**, Valenti, G., Magnetostriction in Transversely Isotropic Hexagonal Crystals, *Physical Review B*, manuscript BG14250, submitted 2019-07-19, accepted with revisions 2019-09-22, resubmitted 2019-10-11
- [S2] Hashlamoun, K.\*, **Federico, S.**, Anisotropic Diffusivity Tensor in Articular Cartilage: Effective Medium Approach, *Journal of Biomechanical Engineering*, manuscript BIO-19-1300, submitted 2019-06-11, accepted with revisions 2019-09-18, resubmitted 2019-10-05

### Articles in Peer-Reviewed International Journals – Accepted or in Press

- [A1] **Federico, S.**, Alhasadi, M.F.\*, Grillo, A., in press. Eshelby's Inclusion Theory under the Light of Noether's Theorem, *Mathematics and Mechanics of Complex Systems*, manuscript 190206-Federico, submitted 2019-02-06, accepted with revisions 2019-04-12, resubmitted 2019-06-15, accepted in final form 2019-08-18
- [A2] Maleki, M.\*\*, Hashlamoun, K.\*, Herzog, W., **Federico, S.**, in press. Effect of Structural Distortions on Articular Cartilage Permeability under Large Deformations, *Biomechanics and Modeling in Mechanobiology*, manuscript BMMB-D-19-00081, submitted 2019-03-20, accepted with revisions 2019-05-10, resubmitted 2019-07-08, accepted in final form 2019-08-06, published online 2019-09-10, DOI: [10.1007/s10237-019-01213-6](https://doi.org/10.1007/s10237-019-01213-6)

### Articles in Peer-Reviewed International Journals – Published

- [A3] Di Stefano S., Carfagna, M., Knodel, M.M., Hashlamoun, K.\*, **Federico, S.**, Grillo, A., 2019. Anelastic Reorganisation of Fibre-Reinforced Biological Tissues, *Computing and Visualization in Science*, 20 (3-6), 95-109, DOI: [10.1007/s00791-019-00313-1](https://doi.org/10.1007/s00791-019-00313-1)
- [A4] **Federico, S.**, Consolo, G., Valenti, G., 2019. Tensor Representation of Magnetostriction for all Crystal Classes, *Mathematics and Mechanics of Solids*, 24 (9), 2814-2843, DOI: [10.1177/1081286518810741](https://doi.org/10.1177/1081286518810741)
- [A5] Komeili, A.\*\*, Abusara, Z., **Federico, S.**, Herzog, W., 2019. Effect of Strain Rate on Transient Local Strain Variations in Articular Cartilage, *Journal of the Mechanical Behavior of Biomedical Materials*, 95, 60-66, DOI: [10.1016/j.jmbbm.2019.03.022](https://doi.org/10.1016/j.jmbbm.2019.03.022)
- [A6] Grillo, A., Di Stefano, S., **Federico, S.**, 2019. Growth and Remodelling from the Perspective of Noether's Theorem, *Mechanics Research Communications*, 97, 89-95, DOI: [10.1016/j.mechrescom.2019.04.012](https://doi.org/10.1016/j.mechrescom.2019.04.012)
- [A7] Alhasadi, M.F.\*, Epstein, M., **Federico, S.**, 2019. Eshelby Force and Power for Uniform Bodies, *Acta Mechanica*, 230 (5), 1663-1684, DOI: [10.1007/s00707-018-2353-6](https://doi.org/10.1007/s00707-018-2353-6)
- [A8] Hamedzadeh, A.\*, Grillo, A., Epstein, M., **Federico, S.**, 2019. Remodelling of Biological Tissues with Fibre Recruitment and Reorientation in the Light of the Theory of Material Uniformity, *Mechanics Research Communications*, 96, 56-61, DOI: [10.1016/j.mechrescom.2019.02.001](https://doi.org/10.1016/j.mechrescom.2019.02.001)
- [A9] Asmussen, M.J., Kaltenbach, C., Hashlamoun, K.\*, Shen, H., **Federico, S.**, Nigg, B.M., 2019. The Validity of Force Measurements during Instrumented Treadmill Running, *Journal of Biomechanics*, 84, 263-268, DOI: [10.1016/j.jbiomech.2018.12.025](https://doi.org/10.1016/j.jbiomech.2018.12.025)
- [A10] Komeili, A.\*\*, Abusara, Z., **Federico, S.**, Herzog, W., 2018. A Compression System for Studying Depth-Dependent Mechanical Properties of Articular Cartilage under Dynamic Loading Conditions, *Medical Engineering and Physics*, 60, 103-108, DOI: [10.1016/j.medengphy.2018.07.004](https://doi.org/10.1016/j.medengphy.2018.07.004)
- [A11] Hamedzadeh, A.\*, Gasser, T.C., **Federico, S.**, 2018. On the Constitutive Modelling of Recruitment and Damage of Collagen Fibres in Soft Biological Tissues, *European Journal of Mechanics – A/Solids*, 72, 483-496, DOI: [10.1016/j.euromechsol.2018.04.007](https://doi.org/10.1016/j.euromechsol.2018.04.007)
- [A12] Grillo, A., Carfagna, M., **Federico, S.**, 2018. An Allen-Cahn Approach to the Remodelling of Fibre-Reinforced Anisotropic Materials, *Journal of Engineering Mathematics*, 109 (1), 139-172, DOI: [10.1007/s10665-017-9940-8](https://doi.org/10.1007/s10665-017-9940-8)

- [A13] Grillo, A., Carfagna, M., **Federico, S.**, 2017. Non-Darcian Flow in Fibre-Reinforced Biological Tissues, *Meccanica*, 52 (14), 3299-3320, DOI: [10.1007/s11012-017-0679-0](https://doi.org/10.1007/s11012-017-0679-0)
- [A14] Maleki, M.\*\*, Martinuzzi, R.J., Herzog, W., **Federico, S.**, 2017. Orthotropic Hydraulic Permeability of Arrays of Parallel Cylinders, *Physical Review E*, 96 (3), 033112, DOI: [10.1103/PhysRevE.96.033112](https://doi.org/10.1103/PhysRevE.96.033112)
- [A15] Hashlamoun, K.\*, **Federico, S.**, 2017. Transversely Isotropic Higher-Order Averaged Structure Tensors, *ZAMP - Zeitschrift für Angewandte Mathematik und Physik (Journal of Applied Mathematics and Physics)*, 68 (4), 88, DOI: [10.1007/s00033-017-0830-8](https://doi.org/10.1007/s00033-017-0830-8)
- [A16] Alhasadi, M.F.\*, **Federico, S.**, 2017. Relation Between Eshelby's Tensor and Stress within an Ellipsoidal Inclusion, *Acta Mechanica*, 228 (3), 1045-1069, DOI: [10.1007/s00707-016-1734-y](https://doi.org/10.1007/s00707-016-1734-y)
- [A17] Hashlamoun, K.\*, Grillo, A., **Federico, S.**, 2016. Efficient Evaluation of the Material Response of Tissues Reinforced by Statistically Oriented Fibres, *ZAMP - Zeitschrift für Angewandte Mathematik und Physik (Journal of Applied Mathematics and Physics)*, 67 (5), 113, DOI: [10.1007/s00033-016-0704-5](https://doi.org/10.1007/s00033-016-0704-5)
- [A18] Wu, J.Z., Herzog, W., **Federico, S.**, 2016. Finite Element Modeling of Finite Deformable, Biphasic Biological Tissues with Transversely Isotropic Statistically Distributed Fibers: Towards a Practical Solution, *ZAMP - Zeitschrift für Angewandte Mathematik und Physik (Journal of Applied Mathematics and Physics)*, 67 (2), 26, DOI: [10.1007/s00033-015-0598-7](https://doi.org/10.1007/s00033-015-0598-7)
- [A19] **Federico, S.**, Grillo, A., Segev, R., 2016. Material Counterpart of First-Order Flux Laws in Terms of Differential Forms, *Continuum Mechanics and Thermodynamics*, 28 (1), 379-390, DOI: [10.1007/s00161-015-0437-2](https://doi.org/10.1007/s00161-015-0437-2)
- [A20] PourAkbar Saffar, K.\*, Sudak, L.J., **Federico, S.**, 2016. A Biomechanical Evaluation of CNT-Grown Bone, *Journal of Biomedical Materials Research A*, 104 (2), 465-475, DOI: [10.1002/jbm.a.35582](https://doi.org/10.1002/jbm.a.35582)
- [A21] Grillo, A., Wittum, G., Tomic, A.\*, **Federico, S.**, 2015. Remodelling in Statistically Oriented Fibre-Reinforced Composites and Biological Tissues, *Mathematics and Mechanics of Solids*, 20 (9), 1107-1129, DOI: [10.1177/1081286513515265](https://doi.org/10.1177/1081286513515265)
- [A22] **Federico, S.**, Grillo, A., Imatani, S., 2015. The Linear Elasticity Tensor of Incompressible Materials, *Mathematics and Mechanics of Solids*, 20 (6), 643-662, DOI: [10.1177/1081286514550576](https://doi.org/10.1177/1081286514550576)
- [A23] Grillo, A., Guaily, A.\*\*, Giverso, C., **Federico, S.**, 2015. Non-Linear Model for Compression Tests on Articular Cartilage, *Journal of Biomechanical Engineering*, 137, 071004-8, DOI: [10.1115/1.4030310](https://doi.org/10.1115/1.4030310)
- [A24] Bellini, C.\*\*, **Federico, S.**, 2015. Green-Naghdi Rate of the Kirchhoff Stress and Deformation Rate: the Elasticity Tensor, *ZAMP - Zeitschrift für Angewandte Mathematik und Physik (Journal of Applied Mathematics and Physics)*, 66 (3), 1143-1163, DOI: [10.1007/s00033-014-0421-x](https://doi.org/10.1007/s00033-014-0421-x)
- [A25] **Federico, S.**, 2015. Some Remarks on Metric and Deformation, *Mathematics and Mechanics of Solids*, 20 (5), 522-539, DOI: [10.1177/1081286513506432](https://doi.org/10.1177/1081286513506432)
- [A26] Grillo, A., Carfagna, M., **Federico, S.**, 2014. The Darcy-Forchheimer Law for Modelling Fluid Flow in Biological Tissues, *Theoretical and Applied Mechanics TEOPM7*, 41 (4), 283-322, DOI: [10.2298/TAM1404281G](https://doi.org/10.2298/TAM1404281G)
- [A27] Tomic, A.\*, Grillo, A., **Federico, S.**, 2014. Poroelastic Materials Reinforced by Statistically Oriented Fibres - Numerical Implementation and Application to Articular Cartilage, *IMA Journal of Applied Mathematics*, 79 (5): 1027-1059, DOI: [10.1093/imamat/hxu039](https://doi.org/10.1093/imamat/hxu039)
- [A28] Moo, E.K.\*, Han, S.-K., **Federico, S.**, Jinha, A., Sibole, S., Abu Osman, N.A., Pinguan-Murphy, B., Herzog, W., 2014. Extracellular Matrix Integrity Affects the Mechanics of *In-Situ* Chondrocytes under Compression, *Journal of Biomechanics*, 47 (5), 1004-1013, DOI: [10.1016/j.jbiomech.2014.01.003](https://doi.org/10.1016/j.jbiomech.2014.01.003)
- [A29] Bellini, C.\*\*, Di Martino, E.S., **Federico, S.**, 2013. Mechanical Behaviour of the Human Atria, *Annals of Biomedical Engineering*, 41 (7), 1478-1490, DOI: [10.1007/s10439-012-0699-9](https://doi.org/10.1007/s10439-012-0699-9)
- [A30] Kuhlmann, M.\*, Fear, E., Ramirez-Serrano, A., **Federico, S.**, 2013. Mechanical Model of the Breast for the Prediction of Deformation during Imaging, *Medical Engineering & Physics*, 35 (4), 470-478, DOI: [10.1016/j.medengphy.2012.06.012](https://doi.org/10.1016/j.medengphy.2012.06.012)
- [A31] Bongue-Boma, M.\*\*, Sudak, L., **Federico, S.**, 2012. Gradient Dependent Constitutive Laws for a Model of Micro-Cracked Bodies, *International Journal for Multiscale Computational Engineering*, 10 (6), 581-597, DOI: [10.1615/IntJMultCompEng.2012002781](https://doi.org/10.1615/IntJMultCompEng.2012002781)
- [A32] Moo, E.K.\*, Herzog, W., Han, S.-K., Abu Osman, N.A., Pinguan-Murphy, B., **Federico, S.**, 2012. Mechanical Behaviour of *In-Situ* Chondrocytes Subjected to Different Loading Rates: A Finite Element

- Study, *Biomechanics and Modeling in Mechanobiology*, 11 (7), 983-993, DOI: [10.1007/s10237-011-0367-2](https://doi.org/10.1007/s10237-011-0367-2)
- [A33] **Federico, S.**, 2012. Covariant Formulation of the Tensor Algebra of Non-Linear Elasticity, *International Journal of Non-Linear Mechanics*, 47 (2), 273-284, DOI: [10.1016/j.ijnonlinmec.2011.06.007](https://doi.org/10.1016/j.ijnonlinmec.2011.06.007)
- [A34] Grillo, A., **Federico, S.**, Wittum, G., 2012. Growth, Mass Transfer, and Remodeling in Fiber-Reinforced, Multi-Constituent Materials, *International Journal of Non-Linear Mechanics*, 47 (2), 388-401, DOI: [10.1016/j.ijnonlinmec.2011.09.026](https://doi.org/10.1016/j.ijnonlinmec.2011.09.026)
- [A35] **Federico, S.**, Grillo, A., 2012. Elasticity and Permeability of Porous Fibre-Reinforced Materials under Large Deformations, *Mechanics of Materials*, 44, 58-71. DOI: [10.1016/j.mechmat.2011.07.010](https://doi.org/10.1016/j.mechmat.2011.07.010)
- [A36] Bongue-Boma, M.\*\*, Epstein, M., **Federico, S.**, 2011. A Continuum Model of Negatively Charged Rods Finely Dispersed in a Positively Charged Fluid, *Mechanics Research Communications*, 38 (8), 574-578, DOI: [10.1016/j.mechrescom.2011.08.002](https://doi.org/10.1016/j.mechrescom.2011.08.002)
- [A37] Han, S.-K., **Federico, S.**, Herzog, W., 2011. A Depth-Dependent Model of the Pericellular Microenvironment of Chondrocytes in Articular Cartilage, *Computer Methods in Biomechanics and Biomedical Engineering*, 14 (7), 657-664, DOI: [10.1080/10255842.2010.493512](https://doi.org/10.1080/10255842.2010.493512)
- [A38] **Federico, S.**, 2010. On the Volumetric-Distortional Decomposition of Deformation in Elasticity, *Mathematics and Mechanics of Solids*, 15 (6) 672-690, DOI: [10.1177/1081286509105591](https://doi.org/10.1177/1081286509105591)
- [A39] **Federico, S.**, Gasser, T.C., 2010. Non-Linear Elasticity of Biological Tissues with Statistical Fibre Orientation, *Journal of the Royal Society Interface*, 7 (47), 955-966, DOI: [10.1098/rsif.2009.0502](https://doi.org/10.1098/rsif.2009.0502)
- [A40] **Federico, S.**, 2010, On the Linear Elasticity of Porous Materials, *International Journal of Mechanical Sciences*, 52 (2), 175-182, DOI: [10.1016/j.ijmecsci.2009.09.006](https://doi.org/10.1016/j.ijmecsci.2009.09.006)
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